

Northwest data centers' electricity use could more than double, imperiling climate goals

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Power lines adjoining an Amazon data center in Morrow County. The Oregonian

By [Mike Rogoway | The Oregonian/OregonLive](#)

Data centers proliferating across Oregon will consume dramatically more electricity than regional utilities and power planners had anticipated, according to three new forecasts issued this summer.

That's putting more pressure on the Northwest electrical grid and casting fresh doubt on whether Oregon can meet the ambitious clean energy goals the state established just two years ago.

Portland General Electric sharply increased its forecast for regional power demand in July, citing "rapid industrial growth and growing demand of data centers." The utility predicts electricity demand in the Portland area will be at least 13% higher in 2030 than what PGE projected just last spring.

The Bonneville Power Administration now expects that, by 2041, data centers' electricity demands in Oregon and Washington will grow by two-and-a-half times, drawing 2,715 average megawatts. That's enough to power a third of all the homes in those two states today.

Massoud Jourabchi, economist with the Northwest Power and Conservation Council, issued a similar forecast last month but warned data centers' power needs might grow even faster than anticipated.

"If we grow at this rate, we are dealing with significant, and I underline significant, increase in loads," Jourabchi told regional power planners at a July meeting. "If you are not sober at this point, this must be some strong stuff that you're using."

Data centers are already among the Northwest's largest consumers of electricity. Amazon, Apple, Facebook and Google all operate huge data centers in central and eastern Oregon, while a multitude of data hosting companies have built [a major cluster of large facilities in Hillsboro](#).

Washington has a huge cluster of data centers, too, concentrated in the center of the state – especially around the small town of Quincy, in central Washington, and near the tech hubs in the Seattle area.

Now, with artificial intelligence creating fresh markets for computing power, tech companies are readying another phase of rapid growth. It's happening as the [shift toward electric cars](#) creates new power demands, and as Oregon pushes its privately owned utilities to move entirely to clean energy by 2040.

"We're going to be intensely competing over pretty finite renewable resources over the next 15 to 20 years. That's a very serious risk to our clean energy goals," said Joshua Basofin of Climate Solutions Oregon.

Data centers drive power needs

Data centers stream music and movies, host our Instagram posts and TikToks, crunch corporate data and power the computerized brains behind artificial intelligence. Tech companies built these server farms all over the world, but they're especially abundant in Oregon.

That's partly because of the region's proximity to tech hubs in Seattle and Silicon Valley, and partly because the state has historically had ready access to land, electricity and water, which data centers use to cool their hardworking computers.

Oregon's biggest draw, though, is tax breaks.

The state allows local governments to offer unlimited tax breaks to data centers even though they employ relatively few people. Property tax incentives [saved the industry more than \\$180 million last year](#).

Remote Morrow County, with just 13,000 people along the Columbia River, [awarded Amazon tax breaks valued at \\$1 billion over 15 years in May](#). The company plans to build six new data centers there, near the city of Boardman.

Amazon says it wants to move to 100% clean electricity — and promises to do so by 2025 through energy projects it's funding elsewhere on the western U.S. power grid — but it's having trouble finding enough power of any kind for the constellation of data centers it has already built in Morrow County and nearby Umatilla County.

[Amazon wants to use fuel cells powered by natural gas](#), a major source of carbon emissions, as a stopgap source of power for some Oregon data centers while it awaits new clean energy projects and transmission capacity.

Amazon and Meta, the parent company of Facebook, have Oregon's largest data center footprints. Amazon did not comment on the three new regional power forecasts, instead reiterating its stated commitment to clean power. Facebook did not respond to an inquiry.

The energy squeeze will grow more acute across the Northwest as data centers grow and as Oregon and Washington prioritize clean electricity.

"The transmission needs of the region are very, very substantial and at least in the near term primarily data center-driven," said Randy Hardy, former head of the Bonneville Power Administration, now an energy consultant in Seattle.

Generally speaking, public utilities in Oregon have to serve all the customers in their service territory. But they can't always serve them immediately, if they don't have power available to meet their needs. Oregon's clean-energy mandate is complicating that task.

Two years ago, Oregon lawmakers passed a bill requiring PGE and other investor-owned utilities to cut their carbon emissions by 80% by 2030. But Hardy said data center growth in Hillsboro, and [Intel's pending factory expansion](#), will severely strain the power grid in Washington County.

"Probably the biggest implication of the lack of transmission, in my opinion, is that PGE won't be able to meet its 2030 clean energy deadlines," Hardy said. He said the utility is three to five years behind the state's target.

PGE says it still expects to meet Oregon's clean-energy mandate, and the 80% reduction in emissions. And the utility maintains it has adequate capacity to accommodate the semiconductor industry's expansion timetable in Washington County. But the utility acknowledges it will have to get creative.

"Achieving emissions targets reliably and affordably will require access to a wider geographic diversity of resources and the transmission solutions to access them," PGE spokesperson Andrea Platt said in an email.

Tax breaks draw data centers

Data centers are just one component of the Northwest's increasingly complex power landscape. The Northwest Power and Conservation Council expects electric vehicles will create even more new energy demand over the next two decades, and other industries could grow, too. And household power use may grow, too, as people shift away from natural gas to cook their food and heat their homes.

"We're going to need some new technologies to come along to fill the gaps if the loads really do grow at this rate," said Jennifer Light, director of power planning for the council.

Energy companies are exploring new battery technologies and other innovations, like hydrogen-powered fuel cells. But it's hard to know when those concepts will be viable, or if they ever will be.

Chipmakers and data center operators are working to engineer more efficient computers that use less power, perhaps far less. Jourabchi, the power council's forecaster, said that while he's pretty confident of his growth forecast over the next five years, he's less certain beyond that.

"Anytime you ask me long term I cannot give you a good, straight-faced answer," Jourabchi said. But he said his "gut feeling" is that data center energy needs may grow even faster than his forecast, doubling every 10 years.

Data centers are especially complex for power planners because it's hard for utilities to anticipate their needs, according to Hardy.

“The data centers are pretty secretive about where they’re going to locate and what they want and when they want it. So typically if you’re a utility you don’t know about this stuff until the data center pops up,” Hardy said.

“Since it takes 10 years, minimum, to build any new transmission line, that’s a problem,” he said. “And you don’t know about it so you can’t plan it.”

Tax policy will be a key determinant of just how much power Northwest data centers will use in the coming years, according to Grant Forsyth, chief economist for Avista Utilities in Spokane.

“One of the issues that’s going to drive, I think, where these data centers locate, are the tax preferences that states offer them,” Forsyth said at the power council’s July meeting in Portland. “To what extent these tax preferences start to either increase or get rolled back in the future may impact, ultimately, the accumulation of (power) load that we see.”

Oregon lawmakers rejected proposals to rein in the state’s data center incentives during this year’s legislative session, [extending the state’s program of unlimited property tax breaks for the industry until 2032](#).

Since Oregon delegates the authority for awarding property tax breaks to local governments, there’s no statewide coordination on where new data centers go. Cities and counties cherish that autonomy, saying it enables them to recruit businesses that fit best in their communities.

But that also means there’s no statewide coordination over the size of the tax giveaways, or where data centers build. That contributes to the strain on local power grids.

In other ways, though, Oregon is moving toward being more proactive about planning for the state’s energy needs. Legislation passed during the last session directs the Oregon Department of Energy to develop a comprehensive energy strategy to meet the state’s policy goals.

Private companies and power planners are beginning to prepare for growing power demand, too.

A company called Pine State Energy filed plans with Oregon regulators in June for an enormous 1,200-megawatt solar farm in Morrow County, with construction beginning in 2026. It’s just miles from Amazon’s data centers and could eventually help meet that company’s regional power needs.

And last month, the Bonneville Power Administration announced [\\$2 billion in transmission upgrades](#) to expand the Northwest power grid.

BPA didn’t specifically mention data centers in its announcement but said the transmission work will boost PGE’s capacity. It also includes projects near Facebook and Apple data centers in Prineville and near Amazon’s facilities near Boardman and Hermiston.

Data centers aren’t going anywhere, according to Nicole Hughes, the executive director of Renewable Northwest, a Portland organization supported by the clean-power industry. As a society, she said, we are too dependent on our smartphones and social media to wean ourselves off the technologies data centers enable.

“We either have to accommodate that by providing the electricity to support it or decide to do something different,” Hughes said.

While she maintains Oregon is on a path toward meeting its 2030 clean energy targets, Hughes said the way forward is vague beyond that.

So she suggests Oregon consider big changes, including revamping its land-use laws, to make room for more clean energy and transmission to get that power to where it's needed.

"We don't have a plan for 2040, and so we need to start planning today for what that looks like," Hughes said. "It's going to require more infrastructure, it's going to require a regional market, it's going to require building a lot of regional generation."



Data centers occupy more than 300 acres of prime industrial land in Hillsboro. Continued growth could strain the regional power grid and complicate the transition to clean energy. Power planners warn that it may be especially difficult to add transmission capacity in suburban areas like Washington County. Dave Killen / The Oregonian

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